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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/594,721	06/16/2000	Yuji Yamamoto	048369/0117	2350

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Washington, DC 20007

EXAMINER

RUDE, TIMOTHY L

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 08/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/594,721

Applicant(s)

YAMAMOTO ET AL.

Examiner

Timothy L Rude

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 20 May 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-16 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4-9 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2, 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

1. The specification is amended without the introduction of new matter, overcoming the objection to the drawings.

Claims

2. Claims 1, 6, 7, and 8 are amended, and the rejection of claim 8 under 35 U.S.C. 112, second paragraph, is withdrawn. Claims 10-16 are added.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claim 1 (amended) is rejected under 35 U.S.C. 102(e) as being anticipated by Kurauchi et al (Kurauchi) USPAT 5,917,572.

As to claim 1, Kurauchi discloses in Figure 22 a liquid-crystal display panel comprising: a plurality of pixels; and a columnar spacer, 204, formed and disposed on a portion of a surface of a multi-layered film, said films, 183 and 184, formed on a surface of a substrate facing a transparent electrode provided in at least a part of pixels, 188, among a plurality of pixel portions forming a liquid-crystal display panel, said portion of said multi-layered film having little variation in thickness (as illustrated) (col. 17, line 25 through col. 18, line 16).

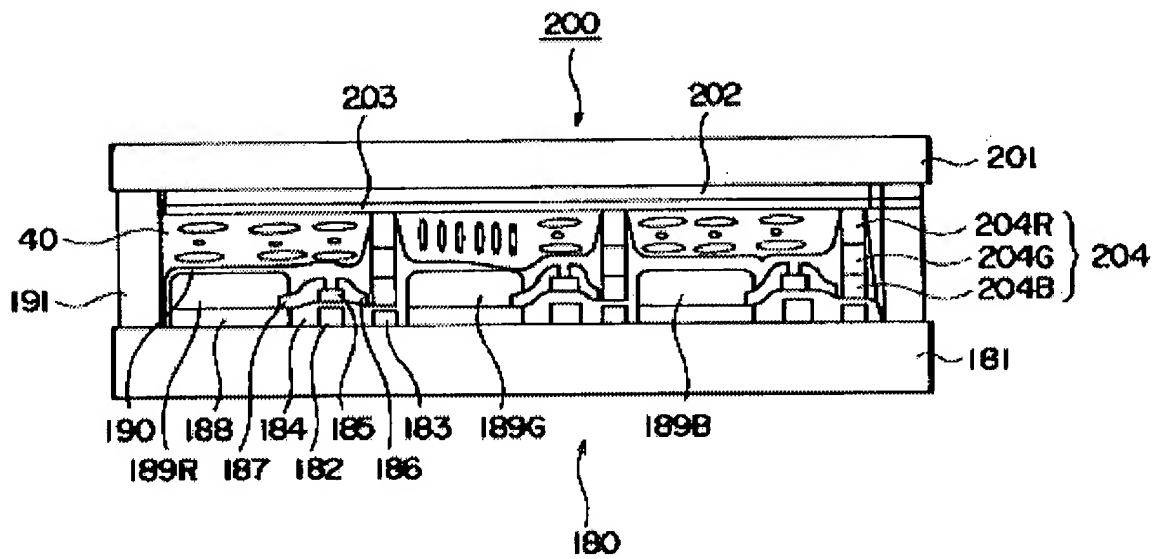


FIG. 22

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1, 2, and 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyazaki et al (Miyazaki) USPAT 5,757,451.

As to claim 1, Miyazaki discloses, in Figures 2 and 3, a liquid-crystal display panel comprising: a plurality of pixels; and a columnar spacer, 58r, 58g, and 58b, formed and disposed on a portion of a surface of a multi-layered films, 52, 53, 54, 55, and 56, formed on a surface of a substrate, 51, facing to a transparent electrode provided in at least a part of pixels, 61, among a plurality of pixel portions forming a liquid-crystal display panel and said portion of said multi-layered film having little variation in thickness (col. 6, line 32 through col. 9, line 18).

As to claim 4, Miyazaki discloses, in Figure 2, a liquid-crystal display panel according to claim 1, wherein said columnar spacer is formed on a pixel electrode, 56

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(source electrode electrically connected to transparent pixel electrode 61), and passes through a transparent electrode film, 61.

As to claim 5, Miyazaki discloses, in Figure 2, a liquid-crystal display panel according to claim 1, wherein said columnar spacer is made of a material selected from a group consisting of an organic resist material (col. 5, line 3 through col. 9, line 18).

As to claim 6, Miyazaki discloses, in Figure 2, a liquid-crystal display panel according to claim 1, wherein the type of said liquid-crystal display panel is one type selected from a group consisting of a color type (col. 6, line 32 through col. 9, line 18).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki.

As to claim 7, the method for manufacturing a liquid-crystal display panel comprising: forming in each of a plurality of pixel regions on a substrate a color film, a

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signal electrode, a gate electrode, and a pixel electrode; forming a transparent electrode film thereover; then forming a columnar spacer on said transparent electrode film minimally in a part of contact holes provided on said pixel regions; and then disposing an opposing substrate on which is formed an opposing common transparent electrode so as to oppose said transparent electrode film is obvious given the teachings of Miyazaki (Figures 2 and 3, and col. 5, line 3 through col. 9, line 18).

As to claim 8, the method for manufacturing a liquid-crystal display panel comprising: forming in each of a plurality of pixel regions on a substrate a color film, a signal electrode, a gate electrode, and a pixel electrode; then forming a columnar spacer on said transparent electrode film minimally in a part of contact holes provided on said pixel regions; forming a transparent electrode film on said color film, signal electrode, gate electrode, and pixel electrode, with the exception of said columnar spacer; and then disposing an opposing substrate on which is formed an opposing common transparent electrode so as to oppose said transparent electrode Film, with interposing said columnar spacer therebetween is obvious given the teachings of Miyazaki (Figures 2 and 3, and col. 5, line 3 through col. 9, line 18).

As to claim 9, Miyazaki teaches the use of a columnar spacer made of a material selected from a group consisting of an organic resist material (col. 5, line 3 through col. 9, line 18).

Allowable Subject Matter

6. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As to claim 3, a search of relevant prior art of record did not disclose, alone or in combination, a liquid-crystal display panel according to claim 1, *wherein said columnar spacer is formed on a transparent electrode film*. The closest reference is Miyazaki, but Miyazaki does not disclose the claimed recitations, and Kurauchi teaches away (col. 13, lines 35-43).

7. Claims 10-16 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

As to claims 10-12, a search of relevant prior art of record did not disclose, alone or in combination, a LCD panel according as claimed wherein said variation in thickness of said portion of said multi-layer films is 0.1 μm to 0.2 μm , several tens of angstroms, or several hundreds of angstroms. The closest reference is Miyazaki, but Miyazaki does not disclose the claimed recitations.

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As to claim 13, a search of relevant prior art of record did not disclose, alone or in combination, a method for manufacturing a LCD panel as claimed, *wherein said columnar spacer is formed on a transparent electrode film*. The closest reference is Miyazaki, but Miyazaki does not disclose the claimed recitations, and Kurauchi teaches away (col. 13, lines 35-43).

As to claims 14-16, they are dependant upon claim 13 with allowable subject matter above.

Response to Arguments

8. Applicant's arguments filed 20 June 2002 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are as follows:

(1) Kurauchi does not disclose or suggest forming columnar spacers in a portion of the multi-layered film having little variation in thickness as claimed by Applicant.

(2) Miyazaki does not disclose or suggest forming columnar spacers in a portion of the multi-layered film having little variation in thickness as claimed by Applicant.

Examiner's responses to Applicant's ONLY arguments are as follows:

(1) It is respectfully pointed out that Kurauchi discloses the claimed structure of forming columnar spacers in a portion of the multi-layered film having little variation in thickness as claimed by Applicant. The recitation "little variation in thickness" is not

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quantified, so it is considered met by most any LCD device and manufacturing method that does not explicitly teach away from "little variation in thickness". LCD devices have long been designed and manufactured to close tolerances of layer thickness, so it would be obvious to those having ordinary skill in the art of liquid crystals to provide for little variation in thickness of the multi-layered film to ensure satisfactory LCD performance.

(2) It is respectfully pointed out that Miyazaki discloses the claimed structure of forming columnar spacers in a portion of the multi-layered film having little variation in thickness as claimed by Applicant. The recitation "little variation in thickness" is considered met for reasons stated above.

Conclusion

References cited but not applied are relevant to the instant application.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (703) 305-0418. The examiner can normally be reached on Monday through Thursday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on (703) 308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7725 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.



Timothy L Rude
Examiner
Art Unit 2871

TLR
August 16, 2002



TOANTON
PRIMARY EXAMINER